

3. Pronotum without a lateral gibbous area; anterior margin of mesosternum strongly, angulately produced, the process received in the strongly emarginate prosternal base; elytra without rows of trichomes along the striae.....*Reninus* Lewis  
 Pronotum with a longitudinal gibbous area on each side; anterior margin of mesosternum feebly, obtusely produced (nearly truncate); elytra with rows of trichomes along the striae...*Ulkeus* Horn (1885, p. 143)
4. Elytra without dorsal striae, rather densely punctate; pronotum gibbous at the sides, the gibbous area divided into distinct cushionlike lobes; anterior margin of mesosternum produced and received in the angulately emarginate prosternal base....*Terapus* Marseul (1862, p. 680)

The tribe Hetaeriini (composed in North America of the genera *Echinodes* and *Hetaerius*) may be separated from the Hetaeriomorphini by the condition of the antennal club, which is oval in the latter tribe; in the Hetaeriini the club is cylindrical and truncated at the tip, the truncated tip being densely pubescent.

### *Reninus salvini* (Lewis)

Fig. 1

*Renia salvini* Lewis, 1888, p. 220, pl. 8, figs. 6, 7.

*Reninus salvini* Lewis, 1905, p. 52.

Form oblong-oval, moderately convex. Color deep reddish brown, shining. Head, labrum, and mandibles with fine, sparse, setigerous punctures, those of the mandibles aciculate. Mandibles and vertex of head with a few fine rugae. Supraorbital stria distinct but somewhat broken up, continuous on each side with the cariniform marginal stria which commences within the eyes and extends to the anterior margin of the epistoma.

Pronotum a little less than twice as wide as long, rather strongly impressed on each side near the anterior angles, less strongly impressed on each side near base, sharply, sparsely punctulate throughout; sides nearly straight, moderately converging to the truncated anterior angles. Marginal pronotal stria extremely fine, cariniform, complete laterally, interrupted behind the head.

Elytra sharply, sparsely punctulate throughout. Epipleura finely strigose, with two fine cariniform striae, of which the outer is short and apical, the inner (marginal elytral stria) is very close to the epipleural margin basally but extends dorsally to transverse the epipleural fossette on apical two-thirds, and from thence extends half way across the elytral apical margin. External subhumeral stria complete, cariniform, strongly sinuous, and "fused" with the internal subhumeral stria for a short distance near the middle; internal subhumeral stria complete, nearly straight, costiform basally, finely cariniform and close to the first dorsal stria near apex, forming the margin between the elytral disc and the epipleuron. First dorsal stria complete, cariniform basally, costiform apically; second dorsal stria finely cariniform, very slightly abbreviated at apex; third and fourth dorsal striae finely cariniform, extending to about apical third, the fourth stria arching broadly at base and recurving briefly along the suture; sutural stria absent; internal subhumeral stria and the dorsal striae strongly, inwardly, transversely hooked at base. Propygidium and pygidium sparsely punctulate.

Prosternum moderately broad, the keel completely margined, the carinal striae finely cariniform, joined in an arch anteriorly and continuous at base along the incised margin; lateral prosternal striae cariniform, divergent and ascending, extending to the prosternal lobe; on each side between the carinal

and lateral striae are two fine abbreviated striae; prosternum (except the enclosed keel) and prosternal lobe microscopically, densely strigose and sparsely, finely punctate, the punctures elongate, linear. Prosternal lobe with the anterior margin truncate, margined, the marginal stria deep and terminating on each side in deep, elongate foveae.

Mesososternum very short, strongly, angulately produced at middle; meso-metasternal stria slightly anterior to the meso-metasternal suture, and trisinate, the middle sinuation strongest. Metasternum sparsely, remotely punctulate, with four apically diverging striae on each side, these striae joined medial to the middle coxal cavity; the innermost stria is straight and extends posteriorly one-half the length of the metasternum; the next stria is complete and extends to the anterior margin of the posterior coxal cavity; the two outer stria are arcuate and extend laterally on the elevated metasternal sides. Meso- and metathoracic pleurites with a number of strioliform punctures. Anterior margin of first abdominal sternite with a complete transverse, crenate, marginal stria; within the coxae on each side are three cariniform, longitudinal striae of varying length.

Length: 3.5-4.2 mm. Width: 2.7 mm.

*Remarks.*—The specimen upon which this description is based was collected by E. V. Walters in a nest of *Atta texana* (Buckley) at a depth of between 6 and 10 feet at San Antonio, Tex., January 17, 1935.

Lewis's type of this species was collected in an ant nest beneath a stone at Atlisca, Puebla, Mexico, but the host was not recorded. Later (1907, p. 105) Lewis recorded *Atta cephalotes* as a host species, and Bickhardt (1917, p. 241) gives *Atta fervens* Say (*sic*). Other *Reninus* are known to be attaphiles, and one species (*R. meticulosus* Lewis) has been recorded from *Atta* nests (*A. sexdens*, fide Reichensperger, loc. cit.) and from termite galleries (Lewis). The attaphilous Histeridae, believed to be chiefly synechthrans, are few in number, the only other species apparently known from the United States being *Acritus attaphilus* Wenzel (loc. cit., p. 384).

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ZOOLOGY.—*Austrobdella anoculata*, a new species of fish leech from Greenland.<sup>1</sup> J. PERCY MOORE, University of Pennsylvania. (Communicated by WALDO L. SCHMITT.)

In the course of his many expeditions to the Arctic, Capt. Robert A. Bartlett has brought back extensive collections of animal and plant life from that region. Among the material collected on opposite sides of Greenland, seven years apart, he obtained two contracted examples of a small marine leech, of which the host is unknown, one from north-west Greenland between Capes Alexander and Chalon, and the other from northeast Greenland.

I have been unable to harmonize them with the description of any species hitherto reported from our northern seas. Except for minor differences, they agree with the type of Badham's genus *Austrobdella*. Of the two, the paratype is somewhat less contracted and distorted and for that reason was sectioned for study of the internal anatomy. The drawings and description are based upon both specimens.

***Austrobdella anoculata*, new species**

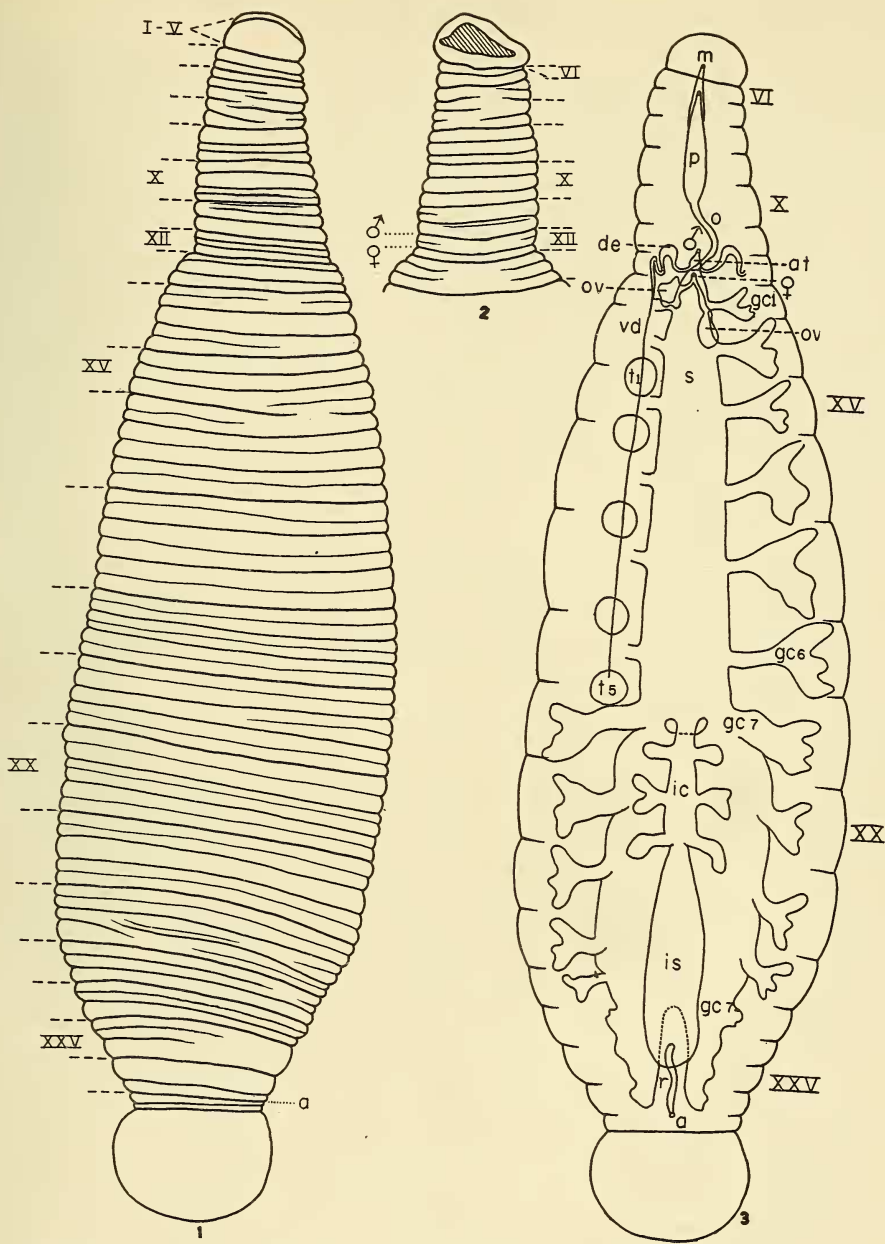
Figs. 1-4

*Diagnosis*.—Similar to *A. translucens* Badham,<sup>2</sup> but distinguished by absence of eyes, abdomen less abruptly shouldered in adult, somites typically tri- (sex-) annulate; gonopores separated by two annuli, ovisacs short, without prolonged posterior lobes; last pair of gastric caeca with about one-fifth of their caudal ends disunited.

*Description*.—Body divided into two regions, "neck" and "abdomen," the former short and subcylindrical, the latter about three times as long, abruptly wider and moderately depressed. Measurements in millimeters of type: Length 4.6, to ♂ pore 1.0; widths, cephalic sucker (contracted) about 0.4, at ♂ pore 0.65, maximum (XIX-XX) 1.8, anus 0.7; caudal sucker 0.9; depths not measured but in neck slightly less than widths, in abdomen about three-fourths widths. Paratype at same points 6.8, 1, 4.7, 0.8, 2.1, 0.75, 1.0; maximum depth about 1.4. Cephalic sucker small, about one-half diameter of caudal sucker, normally cup-shaped, but so contracted in both specimens that ventrally it appears as a thickened annular rim surrounding a deep central depression; in dorsal aspect hemispherical, not definitely wider than the first nuchal somites, without obvious markings, only a few very faint traces of annuli on caudal part and a few scattered, very minute, sensory papillae. Eyes absent, in sections a few pigment granules near middle of head, but no pigment cups or visual cells. Mouth seen only in sections as a minute pore on the cephalic slope of a slight papilla at the center of the ventral face of the sucker. Neck sharply differentiated from abdomen (most so in paratype), subcylindrical, slightly depressed, short, about one-sixth or one-seventh length of abdomen, its maximum width about one-seventh that of the widest part of the abdomen, increasing slightly in width cephalocaudal but again slightly contracted at the clitellum; preclitellar annuli about 13, but irregular, some of them double; intermetameric furrows, including the nuchal groove,

<sup>1</sup> Received August 6, 1940.

<sup>2</sup> Quart. Journ. Micr. Sci. (new ser.) 62: 1. 1916.



Figs. 1-3.—*Austrobdella anoculata*.  $\times$  ca. 28.

1. Annulation in dorsal aspect as worked out from a comparison of the two specimens. In most respects they agree. Where they differ the one appearing most normal or clearest is usually represented, or in other cases the paratype is represented on the left, the type on the right side. Somites are numbered in Roman on left side. a, Anus.
2. Ventral aspect of first 13 segments showing the position of the gonopores.
3. Semidiagrammatic representation of the chief features of the digestive and reproductive organs. The gastric caeca are shown complete on the right side, the male organs on the left side only. a, Anus; at, atrium; de, ductus ejaculatorius; gc 1-7, gastric caeca; ic, caecate intestine; is, saccate intestine; m, mouth; o, esophagus; p, pharynx; r, rectum; s, stomach or crop; t 1-5, testes of left side; vd, vas deferens;  $\sigma$ , male gonopore;  $\phi$ , female gonopore.



generally deeper than the interannular furrows and the only visible external metameric character; most somites 3-annulate. Clitellum ill-defined, somite X not modified, XI and XII somewhat narrower, about as wide as the first nuchal annulus, XII embraced at its caudal end by the anterior fold of the wider first abdominal annulus, into which it is slightly recessed; somites XI and XII triannulate dorsally, biannulate ventrally, the second annulus of XI enlarged in the medial ventral field to encroach upon the first annulus of XII, and bearing the ♂ gonopore; on venter all clitellar annuli longer than those of the preceding somites; gonopores (Fig. 2) separated by two annuli, the ♂ on the caudal margin of XI *a3*, the ♀ at XII *a2/a3*, both small and obscure, especially the female, which on the type is concealed beneath the edge of projecting rim of somite XIII but on the paratype is exposed. Abdomen much wider than neck throughout, outline elliptical, the greatest width near middle at somites XVIII-XX (relatively much wider in the type) moderately depressed; cephalic end truncate but not expanded shoulderlike, embracing the last clitellar annulus, but prepucal fold only slightly developed; caudal end tapered to the sucker, for which it forms a definite peduncle; no lateral pulsatile vesicles and no other external metameric structures (nephropores, sensillae) discernible, except that intersegmental furrows are usually deeper than the others. Abdominal somites typically 3(6)-annulate but some of them definitely 6-annulate with the primary triannulation obscure, furrows often irregular or incomplete. Anus a well marked pore on the caudal peduncle followed by two incomplete annuli. Caudal sucker about twice size of cephalic in all dimensions, deeply cupped, regular, directed caudad, with about 48 minute marginal crenulations; dorsal face areolated and divided by faint furrows into three or four obscure concentric rings, each of which bears a circle of very minute papillae which are most distinct on the smooth ventral face. No natural color remains, but the type is stained a uniform green, which may be due to preservation in a copper tank.

*Annulation* (Fig. 1).—Often irregular and in places, especially at clitellum and caudal end of abdomen, difficult to interpret. On most somites primary and secondary furrows are distinguishable by their relative depth but in places this distinction is lost. I-V, cephalic sucker (head), no annuli distinguishable except some faint traces of one or two at caudal end. VI 2-annulate, first annulus (*a1 a2*) larger and very distinct, separated from sucker by a deep nuchal furrow, the second (*a3*) very small and not separated ventrally. VII 2 or 3-annulate, *a1* separated as a very short annulus on paratype, not distinct on type; furrows irregular and incomplete on both. VIII 3-annulate, similarly irregular, with split and spiral primary annuli. IX and X 3-annulate both dorsally and ventrally, *a3* largest on X with a faint secondary furrow. Normally X is first clitellar, but on these specimens apparently not closely united with XI externally. XI 2- or 3-annulate, definitely clitellar, (*a1 a2*) > *a3* with a faint *a1/a2* furrow on the dorsum, which disappears on the venter where *a3* is enlarged medially and produced caudad into XII as a small lobe bearing the ♂ gonopore on its caudal margin. XII 2- or 3-annulate, 3rd clitellar, similar to XI but shorter, more crowded, and partly concealed by XIII, *a1* less developed than on XI and *a3* possibly slightly subdivided, ♀ gonopore very minute at *a2/a3*, beneath prepucal fold on type. XIII 3-annulate, sharply defined by deep furrows from both XII and XIV and abruptly larger than former, with a moderately developed prepucal fold, which partly encloses it. XIV and XV 3-annulate, with *b5* and *b6* indicated on both paratype and type by a slightly developed *b5/b6* furrow and *b1* and *b2* on the former; owing to contraction the annuli of both crowded together and piled